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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,040	09/17/2003	F. Bruce Thigpen	14413	2607
293 7590 01/11/2007 Ralph A. Dowell of DOWELL & DOWELL P.C. 2111 Eisenhower Ave Suite 406 Alexandria, VA 22314			EXAMINER CHAU, COREY P	
			ART UNIT	PAPER NUMBER
			2615	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/11/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/664,040	THIGPEN, F. BRUCE	
	Examiner	Art Unit	
	Corey P. Chau	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 12 recites the limitation "said at least one subwoofer" in line 4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-9, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6584202 to Montag et al. (hereafter as Montag) in view of USPN 6104825 to Thigpen.
6. Regarding Claim 1, Montag discloses a sound system for providing reflected stereo audio to a listening position, comprising:
  - a. a first smooth surface oriented at an inclined angle toward the listening position (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16);

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b. a second surface positioned at an acute angle with respect to said first smooth surface forwardly of the listening position and facing said first smooth surface (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16);

c. first and second transducers mounted to said second surface so as to be oriented toward said first smooth surface (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16);

d. an acoustic enclosure mounted beneath each of said transducers and said second surface (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16);

e. said first and second transducers being mounted relative to said second surface such that a longest central axis thereof is oriented perpendicular to the listening position and with said transducers being spaced from each other, whereby audio from the transducers is reflected from the first smooth surface toward the listening position providing stereo imaging (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16); and

f. an audio source connected to each of said first and second transducers (abstract; Figs. 2-4).

Montag discloses loudspeaker, but only generally; no specific hardware or software is taught. Therefore it would have been obvious to one having ordinary skill in the art to seek known loudspeakers. Thigpen for example, discloses a transducer, wherein the transducer is a planar magnetic transducer. It would have been obvious to one having ordinary skill in the art to employ any known loudspeakers, such as that of Thigpen. Therefore it would have been obvious to one having ordinary skill in the art at

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the time the invention was made to modify Montag with the teaching of Thigpen to utilize planar magnetic transducers.

7. Regarding Claim 2, Montag discloses an automotive sound system providing direct stereo audio to a listening position located in a vehicle seat, comprising;

a. a first interior surface facing the listening position(Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16);

b. first and second transducers mounted relative to a second interior surface so as to direct audio sound there through toward said first interior surface (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16);

c. said first and second transducers being oriented such that a longest longitudinal axis of each transducer is perpendicular to the listening position, said first and second planar magnetic transducers being spaced from one another in a general linear arrangement, and wherein the audio sound from said first and second planar magnetic transducers is reflected from the first interior surface directly toward the fixed listening location providing stereo imaging (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16); and

d. audio source electronics connected to said first and second transducers to create an audio stereo output (abstract; Figs. 2-4).

Montag discloses loudspeaker, but only generally; no specific hardware or software is taught. Therefore it would have been obvious to one having ordinary skill in the art to seek known loudspeakers. Thigpen for example, discloses a transducer, wherein the transducer is a planar magnetic transducer. It would have been obvious to

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one having ordinary skill in the art to employ any known loudspeakers, such as that of Thigpen. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Montag with the teaching of Thigpen to utilize planar magnetic transducers.

8. Regarding Claim 3, Montag as modified discloses said first interior surface is a windshield and the second surface is a portion of a dashboard (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16).

9. Regarding Claim 4, Montag as modified discloses the vehicle seat is a vehicle front seat (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16).

10. Regarding Claim 5, Montag as modified discloses at least third and fourth planar magnetic transducers mounted within the vehicle interior rearward of the front seat, said third and fourth planar magnetic transducers being mounted such that a longest longitudinal axis of diaphragms associated therewith is generally parallel to the listening position, and said third and fourth planar magnetic transducers being aligned linearly with respect to one another whereby audio sound therefrom is directed toward the front seat (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16).

11. Regarding Claim 6, Montag as modified discloses said third and fourth planar magnetic transducers are mounted so as to direct sound toward a rear window such that sound is reflected from the rear window toward the listening position (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16).

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12. Regarding Claim 7, Montag as modified discloses said third and fourth planar magnetic transducers are mounted within a rear of the front seat (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16).

13. Regarding Claim 8, Montag as modified discloses said third and fourth planar magnetic transducers are mounted within a rear deck of the vehicle (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16).

14. Regarding Claim 9, Montag as modified does not expressly disclose said third and fourth planar magnetic transducers are mounted within an interior roof portion of the vehicle. However, the examiner takes Official Notice that it is well known in the art to mount transducer within an interior roof portion in order have the transducers unnoticeable by the occupants. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Montage as modified to provide said third and fourth planar magnetic transducers are mounted within an interior roof portion of the vehicle in order have the transducers unnoticeable by the occupants.

15. Regarding Claim 13, Montag as modified discloses a first set of first and second planar magnetic transducers mounted forward of the first front seat and a second set of first and second planar magnetic transducers mounted forwardly of a second front seat (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16).

16. Regarding Claim 15, Montag as modified discloses first audio control means for controlling audio sound from said first set of said first and planar magnetic transducers and said first set of third and fourth planar magnetic transducers toward the first front seat and a second audio control means for controlling audio sound from said second set

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of first and second planar magnetic transducers and said second set of third and fourth planar magnetic transducers toward the second front seat (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16).

17. Claims 10-12 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6584202 to Montag in view of USPN 6104825 to Thigpen as applied to claims 1-9, 13, and 15 above, and further in view of USPAPN 20030021433 to Lee.

18. Regarding Claim 10, Montag as modified does not expressly disclose a least one subwoofer mounted within the interior of the vehicle and connected to the audio source electronics. Lee discloses a subwoofer mounted within the interior of the vehicle and connected to the audio source electronics in order to provide surround feelings as can be felt in the theater (Figs. 6 and 9-10). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Montag as modified to incorporate a subwoofer mounted within the interior of the vehicle and connected to the audio source electronics in order to provide surround feelings as can be felt in the theater.

19. Regarding Claim 11, Montag as modified does not expressly disclose at least one subwoofer mounted within the interior of the vehicle generally forward of the front seat and at least one subwoofer mounted rearward of the front seat. Lee discloses at least one subwoofer mounted within the interior of the vehicle generally forward of the front seat and at least one subwoofer mounted rearward of the front seat in order to provide surround feelings as can be felt in the theater (Figs. 6 and 9-10). Therefore it



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would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Montag as modified to incorporate at least one subwoofer mounted within the interior of the vehicle generally forward of the front seat and at least one subwoofer mounted rearward of the front seat in order to provide surround feelings as can be felt in the theater.

20. Regarding Claim 12, as best understood with regards to 112, 2<sup>nd</sup> problem mentioned above, Montag as modified discloses audio controls mounted to the dashboard for controlling audio output from said first, second, third and fourth planar magnetic transducers and said at least one subwoofer (Figs. 3-4).

21. Regarding Claim 14, Montag as modified discloses a first set of said third and fourth planar magnetic transducers mounted to direct audio sound toward the first front seat and a second set of third and fourth planar magnetic transducers mounted to direct audio sound toward the second front seat (Figs. 2-3; column 5, lines 25-41; column 6, lines 4-16).

22. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4819269 to Klayman in view of USPN 6104825 to Thigpen.

23. Regarding Claim 1, Klayman discloses a sound system for providing reflected stereo audio to a listening position, comprising:

a. a first smooth surface oriented at an inclined angle toward the listening position (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48);

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b. a second surface positioned at an acute angle with respect to said first smooth surface forwardly of the listening position and facing said first smooth surface (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48);

c. first and second transducers mounted to said second surface so as to be oriented toward said first smooth surface (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48);

d. an acoustic enclosure mounted beneath each of said transducers and said second surface (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48);

e. said first and second transducers being mounted relative to said second surface such that a longest central axis thereof is oriented perpendicular to the listening position and with said transducers being spaced from each other, whereby audio from the transducers is reflected from the first smooth surface toward the listening position providing stereo imaging (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48); and

f. an audio source connected to each of said first and second transducers (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48).

Klayman discloses loudspeaker, but only generally; no specific hardware or software is taught. Therefore it would have been obvious to one having ordinary skill in the art to seek known loudspeakers. Thigpen for example, discloses a transducer,

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wherein the transducer is a planar magnetic transducer. It would have been obvious to one having ordinary skill in the art to employ any known loudspeakers, such as that of Thigpen. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Klayman with the teaching of Thigpen to utilize planar magnetic transducers.

24. Regarding Claim 2, Klayman discloses an automotive sound system providing direct stereo audio to a listening position located in a vehicle seat, comprising;

- a. a first interior surface facing the listening position (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48);

- b. first and second transducers mounted relative to a second interior surface so as to direct audio sound there through toward said first interior surface (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48);

- c. said first and second transducers being oriented such that a longest longitudinal axis of each transducer is perpendicular to the listening position, said first and second planar magnetic transducers being spaced from one another in a general linear arrangement, and wherein the audio sound from said first and second planar magnetic transducers is reflected from the first interior surface directly toward the fixed listening location providing stereo imaging (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48); and

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d. audio source electronics connected to said first and second transducers to create an audio stereo output (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48).

Klayman discloses loudspeaker, but only generally; no specific hardware or software is taught. Therefore it would have been obvious to one having ordinary skill in the art to seek known loudspeakers. Thigpen for example, discloses a transducer, wherein the transducer is a planar magnetic transducer. It would have been obvious to one having ordinary skill in the art to employ any known loudspeakers, such as that of Thigpen. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Klayman with the teaching of Thigpen to utilize planar magnetic transducers.

25. Regarding Claim 3, Klayman as modified discloses said first interior surface is a windshield and the second surface is a portion of a dashboard (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48).

26. Regarding Claim 4, Klayman as modified discloses the vehicle seat is a vehicle front seat (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48).

27. Regarding Claim 5, Klayman as modified discloses at least third and fourth planar magnetic transducers mounted within the vehicle interior rearward of the front seat, said third and fourth planar magnetic transducers being mounted such that a longest longitudinal axis of diaphragms associated therewith is generally parallel to the

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listening position, and said third and fourth planar magnetic transducers being aligned linearly with respect to one another whereby audio sound therefrom is directed toward the front seat (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48).

28. Regarding Claim 6, Klayman as modified discloses said third and fourth planar magnetic transducers are mounted so as to direct sound toward a rear window such that sound is reflected from the rear window toward the listening position (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48).

29. Regarding Claim 7, Klayman as modified discloses said third and fourth planar magnetic transducers are mounted within a rear of the front seat (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48).

30. Regarding Claim 8, Klayman as modified discloses said third and fourth planar magnetic transducers are mounted within a rear deck of the vehicle (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 3; column 8, line 66 to column 9, line 48).

31. Regarding Claim 9, Klayman as modified does not expressly disclose said third and fourth planar magnetic transducers are mounted within an interior roof portion of the vehicle. However, the examiner takes Official Notice that it is well known in the art to mount transducer within an interior roof portion in order have the transducers unnoticeable by the occupants. Therefore it would have been obvious to one having

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ordinary skill in the art at the time of the invention to modify Klayman as modified to provide said third and fourth planar magnetic transducers are mounted within an interior roof portion of the vehicle in order have the transducers unnoticeable by the occupants.

32. Regarding Claim 10, Klayman as modified discloses a least one subwoofer mounted within the interior of the vehicle and connected to the audio source electronics (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 34; column 8, line 66 to column 10, line 22).

33. Regarding Claim 11, Klayman as modified discloses at least one subwoofer mounted within the interior of the vehicle generally forward of the front seat and at least one subwoofer mounted rearward of the front seat (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 34; column 8, line 66 to column 10, line 22).

34. Regarding Claim 12, Klayman as modified discloses audio controls mounted to the dashboard for controlling audio output from said first, second, third and fourth planar magnetic transducers and said at least one subwoofer (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 34; column 8, line 66 to column 10, line 22).

35. Regarding Claim 13, Klayman as modified discloses a first set of first and second planar magnetic transducers mounted forward of the first front seat and a second set of first and second planar magnetic transducers mounted forwardly of a second front seat (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 34; column 8, line 66 to column 10, line 22).

36. Regarding Claim 14, Klayman as modified discloses a first set of said third and fourth planar magnetic transducers mounted to direct audio sound toward the first front

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seat and a second set of third and fourth planar magnetic transducers mounted to direct audio sound toward the second front seat (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 34; column 8, line 66 to column 10, line 22).

37. Regarding Claim 15, Klayman as modified discloses first audio control means for controlling audio sound from said first set of said first and planar magnetic transducers and said first set of third and fourth planar magnetic transducers toward the first front seat and a second audio control means for controlling audio sound from said second set of first and second planar magnetic transducers and said second set of third and fourth planar magnetic transducers toward the second front seat (Figs. 1 and 6-8; column 5, lines 20-35; column 7, line 39 to column 8, line 34; column 8, line 66 to column 10, line 22).

### ***Conclusion***

38. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPAPN 20040047476 to Sato discloses a method and system for improved sound quality of automotive audio.

USPAPN 20030108211 to Dreyer et al disclose a vehicle having a sound-radiating element.

USPN 4612530 to Kurth et al discloses a motor vehicle alarm service with acoustic signal emission via at least one radio loudspeaker installed into the motor vehicle.

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USPAPN 20020076061 to Astiani et al discloses a piezo integrated flat speakers for automotive interior panels.

USPAPN 20020081980 to Reus discloses a sound reproduction apparatus for use in vehicular audio applications.

USPN 6389147 to Rush et al discloses an audio system for multipurpose automotive vehicles having a rear opening panel.

USPN 5966453 to Koyano et al discloses a speaker system for use in an automobile vehicle.

USPN 5031220 to Takagi et al discloses a mobile stereo speaker set.

USPAPN 20060034467 to Sleboda et al discloses a vehicular audio system including a headliner speaker, electromagnetic transducer assembly for use therein and computer system programmed with a graphic software control for changing the audio system's signal level delay.

39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 7, 2007  
CPC

  
**VIVIAN CHIN**  
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